



## Counteracting Radioresistance Using the Optimization of Radiotherapy

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Team Applications in  
Radiobiology with Accelerated  
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### Message from the Guest Editor

Tumor radioresistance is associated with a failure to achieve loco-regional disease control following radiotherapy with the highest acceptable doses. Radiobiology research focused on tumor radioresistance has pointed out several mechanisms attenuating the efficacy of tumor irradiation and several treatment answers to overcome such radio-resistance. Personalized medicine allows us to adapt the treatment to diseases according to patient specificities and characteristics. For examples, genetic mutations on DNA repair genes open the possibility of synthetic lethality using targeted inhibitors, and hypoxia in the tumoral micro-environment can be weakened with localized chemotherapy associated with accurate imaging. Novel radiotherapy such as heavy ion therapy enable a better balance between high doses to the tumor and low doses to the surrounding healthy tissues. The combined treatment of radiotherapy with specialized chemotherapy and immunotherapy are under development to reduce radioresistance, secondary cancer recovery and metastases emergence.





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